

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2001-040283

(43)Date of publication of application : 13.02.2001

(51)Int.CL

C09D183/02  
C08G 77/08  
C09D 5/25  
C09D183/04  
C09D185/00  
H01L 21/312  
H01L 21/316  
H01L 21/768  
// C07F 7/04  
C07F 7/12  
C07F 7/18

(21)Application number : 11-215615

(71)Applicant : JSR CORP

(22)Date of filing : 29.07.1999

(72)Inventor : NISHIKAWA MICHINORI  
TSUNODA MAYUMI  
EBISAWA MASAHICO  
HAKAMAZUKA SATOKO  
YAMADA KINJI

## (54) PRODUCTION OF COMPOSITION FOR FORMING FILM, COMPOSITION FOR FORMING FILM AND MATERIAL FOR FORMING INSULATING FILM

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To obtain the subject composition useful as an interlayer dielectric in a semiconductor element, etc., having a low dielectric constant and mechanical strength of coating film and long-term preservability of solution by hydrolyzing a specific compound and a specified metal chelate compound in the presence of an acid catalyst in a fixed solvent.

**SOLUTION:** (A) One or more compounds selected from the group consisting of (i) a compound of formula I (R1 is H, F or a monofunctional organic group; R2 is a monofunctional organic group; a is 0~2) such as trimethoxysilane, etc., and (ii) a compound of formula II [R3 to R6 are each a monofunctional organic group; b and c are each 0~2; R7 is O, (CH2)n (n is 1~6); d is 0 or 1] such as hexamethoxydisiloxane, etc., and (B) a chelate compound of formula III (R8 is a chelating agent; M is metal atom; R9 is a 2~5C alkyl or a 6~20C aryl; f is a valence of M; e is an integer of 1~f) such as triethoxymono(acetylacetonato) titanium, etc., are hydrolyzed in the presence of an acid catalyst in a solvent of formula IV (R10 and R11 are each H or a 1~4C alkyl; R12 is an alkylene; g is 1 or 2) to give the objective composition for forming a film.

### LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

BEST AVAILABLE COP

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2001-206710

(43)Date of publication of application : 31.07.2001

(51)Int.CL

C01B 33/12  
C09D183/00  
H01L 21/312  
H01L 21/316

(21)Application number : 2000-011088

(71)Applicant : JSR CORP

(22)Date of filing : 20.01.2000

(72)Inventor : SHIODA ATSUSHI  
SHIBA TADAHIRO  
KUROSAWA TAKAHIKO  
YAMADA KINJI

## (54) FORMING METHOD OF SILICA BASE FILM

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a silica based film useful as an interlaminar insulating film in a semiconductor element or the like and having low density, low dielectric constant, high elastic modulus and low water absorption.

**SOLUTION:** The silica based film is obtained by applying a coating composition containing polysiloxane A, an organic polymer B and an organic solvent C on a substrate and after removing the organic solvent, heating the substrate at 250–400°C in an vacuum or inert gas atmosphere, next heating it at 250–400°C in an atmosphere of oxygen partial pressure not less than 1 Pa and further heating it at a temperature of 350–470°C in an atmosphere of oxygen partial pressure less than 1 Pa.

### LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office

BEST AVAILABLE COPY